iScan™ VP50 PRO

HIGH-DEFINITION VIDEO PROCESSOR & HUB

DVDO

VRS
by Anchor Bay

DVDO by Anchor Bay Technologies, Inc.

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OWNER'S MANUAL

DVDO
by Anchor Bay

DVDO BY ANCHOR BAY TECHNOLOGIES, INC.
LIMITED WARRANTY
WARRANTY VALID ONLY IN THE U.S.A.

iScan™

WARRANTY

DVDO by Anchor Bay Technologies, Inc. (DVDO) warrants that products distributed in the U.S.A. that fail to function properly under normal use due to a manufacturing defect when installed and operated according to the owner's manual enclosed with the unit will be repaired or replaced with a unit of comparable value, at the option of DVDO, without charge to you for parts or actual repair work. Parts supplied under this warranty may be new or rebuilt at the option of DVDO.

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PRODUCT WARRANTY PERIOD	Parts	Labor
iScan Video Processors	**1 Year**	**1 Year**

Shorter periods may apply to some products. Please refer to the limited warranty document enclosed with your specific product for a definitive statement of the warranty period.
The warranty period for retail customers who rent the product commences upon the date product is first put into use (a) during the rental period or (b) retail sale, whichever occurs first.

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TO OBTAIN SERVICE

DVDO has appointed a number of Authorized Service Companies throughout the U.S.A. should your product require service. To receive warranty service you need to present your sales receipt or, if rented, your rental contract showing place and date of original owner's transaction. If shipping the unit you will need to package it carefully and send it, transportation prepaid by a traceable, insured method, to the Authorized Service Company. Package the product using adequate padding material to prevent damage in transit. The original container is ideal for this purpose. Include your name, address and telephone number where you can be reached during business hours.

On all complaints and concerns in the USA call Customer Support at **1-866-423-3836.**
For hook-up and operation of your unit or to locate an Authorized Service Company, please call or write:

TECHNICAL SUPPORT DEPARTMENT
DVDO BY ANCHOR BAY TECHNOLOGIES, INC.
983 University Avenue, Building A
Los Gatos, CA 95032
1-866-423-3836
http://www.DVDO.com

DISPUTE RESOLUTION

Following our response to any initial request to Customer Support, should a dispute arise between you and DVDO, DVDO makes available its Complaint Resolution Program to resolve the dispute. The Complaint Resolution Program is available to you without charge. You are required to use the Complaint Resolution Program before you exercise any rights under, or seek any remedies, created by Title I of the Magnuson-Moss Warranty-Federal Trade Commission Improvement Act, 15 U.S.C. 2301 et seq.

To use the Complaint Resolution Program call 1-866-423-3836 and explain to the customer service representative the problem you are experiencing, steps you have taken to have the product repaired during the warranty period and the name of the authorized Distributor/Dealer from whom the DVDO product was purchased. After the complaint has been explained to the representative, a resolution number will be issued. Within 40 days of receiving your complaint, DVDO will investigate the dispute and will either:

(1) respond to your complaint in writing informing you what action DVDO will take, and in what time period, to resolve the dispute; or (2) respond to your complaint in writing informing you why it will not take any action.

RECORD THE PLACE AND DATE OF PURCHASE FOR FUTURE REFERENCE

Model No. _____   Serial No. _____   Purchase Date _____

Purchased From _____

KEEP THIS INFORMATION AND YOUR SALES RECEIPT IN A SAFE PLACE

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Introduction

Thank you for purchasing the iScan VP50PRO video processor, the first VRS (Video Reference Series) component available with:

- Mosquito Noise Reduction
- Fine Detail Enhancement™
- Edge Enhancement

VRS Technologies included in the iScan VP50PRO are:

- 10-bit Precision Deinterlacing™ of 480i/576i/1080i
- 10-bit Precision Video Scaling™ up to 1080p
- PReP™, Progressive ReProcessing of 480p/576/1080p
- Progressive Cadence Detection™ of 480p/576p/720p/1080p
- Rightrate™ High Performance Frame Rate Conversion

In addition to our own award winning video processing technologies, the iScan VP50PRO also offers a host of other innovative features, including:

- 4 HDMI 1.3 (High Definition Multimedia Interface) Inputs and 1 HDMI 1.3 Output
- THX Video Certification
- ISF ccc Certification
- 2 Programmable 12 V Triggers to control other devices

This Owner's Manual can help you set up your iScan VP50PRO, and give you the information required to understand the total. It can also show you how to properly connect it and use it with the other components in your system.

Unpacking and Inspection

Please verify that your iScan VP50PRO carton contains the following items:

- iScan VP50PRO Video Processor
- Universal 6V@7A AC-to-DC Power Converter
- US IEC Power Cord (International Customers, consult your local authorized DVDO reseller)
- Remote Control
- iScan VP50PRO Owner's Manual
- iScan VP50PRO Quick Start Guide
- Serial Cable for Software Updates and Automation (1:1)
- VRS Optimization & Evaluation DVD
- DVDO Software CD
- Rack Mount Kit
- RCA-to-BNC Adapters (5)

If you are missing any items, please contact your dealer or the DVDO Support Team.

The iScan VP50PRO uses BNC-style analog connectors and an HDMI digital connector to provide video output signals. Five RCA-to-BNC adapters are included to facilitate using the analog input or output with a cable terminated with RCA connections. Additional cables or adapters are required to connect the iScan to your source(s) and display(s). Different displays have different input connectors, so check your display specifications to ensure compatibility.

Both input and output cables can be supplied by your Authorized DVDO Reseller. To find your nearest Authorized DVDO Reseller, go to **www.anchorbaytech.com**. There are also a wide selection of cables and adapters available directly from Anchor Bay.

Display Compatibility Requirements

DVDO iScan video processing products are compatible with a wide range of displays. These include digital TVs, projectors, and flat panel displays, as well as other emerging technologies that can support 480p or higher resolution video signals. To determine if your display is compatible with the DVDO iScan VP50PRO, look to see if it has an HDMI or DVI digital video input. If not, then your display may only have analog High Definition inputs or it is probably limited to receiving a standard NTSC, PAL or SECAM interlaced signal and will not function correctly with VP50PRO. High Definition Analog inputs include Component Video (YPbPr) and RGBHV using HD15 and/or 5 BNC terminated coaxial cables. Component inputs that are not capable of accepting a 480p signal, at a minimum, are usually labeled '480i' (NTSC) or '576i' (PAL/SECAM).

The following types of fixed-pixel displays with digital video inputs should be compatible with the iScan VP50PRO since a large majority of them can support higher resolution signals:

- Plasma displays
- LCD-based flat panel and front & rear projection displays
- DLP-based front & rear projection displays
- LCoS-based front & rear projection displays (D-ILA™ & SXRD™ included)

Document Conventions and Menu Navigation

In this Owner's Manual, an action that requires navigating the menu system of the iScan VP50PRO is referred to in the following abbreviated form:

Picture Control ⇨ Brightness ⇨ 5

For example, to adjust the 'Brightness' to a value of '5', press Picture Control and then press ▼ three times, highlighting 'Brightness' in the on screen display (OSD) or if you are looking at the front panel display (FPD) you will see 'Picture Control' on the top line and 'Contrast' on the bottom line. This is abbreviated as 'Picture Control / Contrast'. Next press ▶ to adjust the setting and then press ▲ until the value is '5'. Finally press Exit.
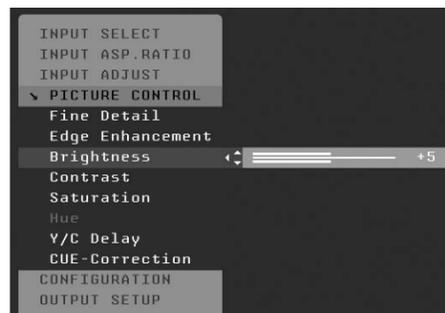
Text that is in **bold** refers to a button on the remote control of front panel of the iScan.

Text that is in 'quotes' references an item that is in the On Screen Display.

Text that is in *italics* references other sections of this Owner's Manual.

The ◀ , ▶,▼, and ▲ symbols refer to the navigational keys on the remote control and the front panel of the iScan.

Menu Navigation

The iScan VP50PRO can be controlled the following ways:

- From the front panel controls
- From the iScan VP50PRO remote control
- From a programmed universal remote control
- Using the serial connection on the back panel

The menu navigation controls on the remote control are duplicated on the front panel of the iScan VP50PRO.

To navigate the menu:

1. Press the Menu button.
2. Use the directional buttons (◀,▲,▼,▶) to highlight the parameter you want to change.
3. Press the **Enter** or ▶ button to select the parameter and the ▲ and ▼ buttons to change the chosen parameter. Press the ◀ button to stop adjusting a parameter and to return to navigating the OSD.
4. Press the **Exit** button to exit out of the menu/OSD

Remote Control Battery Installation

The remote control uses two AAA batteries, which should be replaced as needed. Two AAA batteries are included.

To install the remote control batteries:

1. Locate the battery compartment on the back of the remote control.

2. Remove the cover from the back. To do this, press the tab attached to the cover and pull the cover with the guide on the back of the remote control.

3. Remove the old batteries (if applicable).

4. Insert two new AAA batteries in the compartment as shown on the inside of the battery compartment. Make sure the batteries are correctly inserted, observing the proper polarity.

5. After installation, replace the cover and dispose of the old batteries (if applicable).

Remote Control Overview

For additional information about the functions of these buttons, turn to the pages given in parentheses ( ).
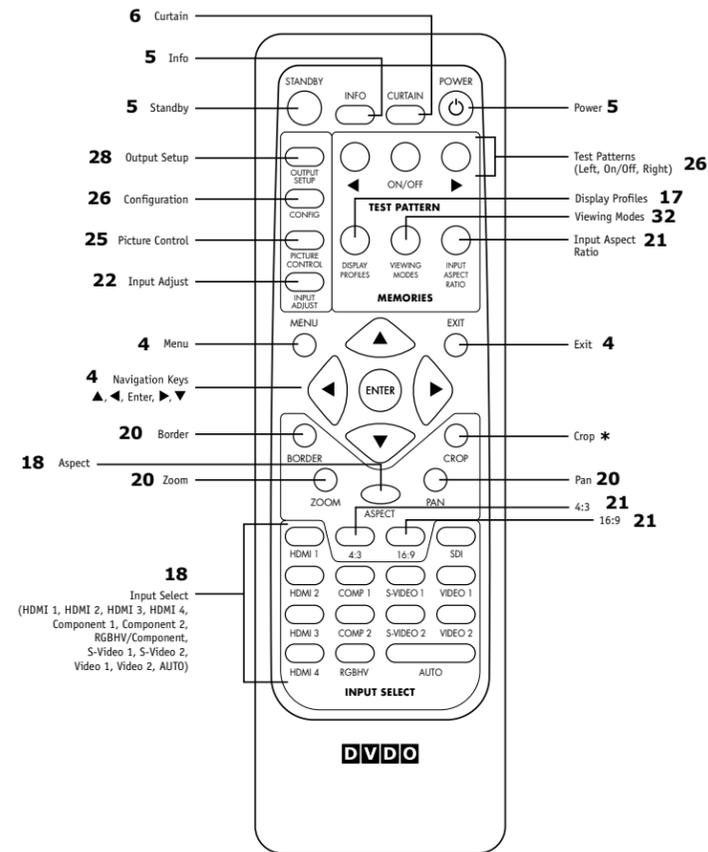
An asterisk (*) indicates a feature that has not yet been implemented.

Power/Standby Buttons

The iScan VP50PRO remote has a **Power** and a **Standby** button. The **Power** button always turns the iScan VP50PRO on and the **Standby** button always put the unit into Standby mode.

Info Button

This iScan VP50PRO has an 'Info' screen which brings up a window on the connected display which contains important input and output information which can help with troubleshooting. The software version which is loaded in the unit will also be displayed on this window and on the front panel display of the iScan.

```
        iScan VP50Pro - v1.00
INPUT STATUS
   Video source : HDMI 4
   Signal type  : 1080i-60Hz, RGB
   Audio source : Off
   Aspect Ratio : 16:9 Full Frame

OUTPUT STATUS (Digital)
   Resolution   : 1920x1080p, RGB
   Frame rate   : 59.94 Hz (Locked)
   Line rate    : 67.432 KHz
   Pixel rate   : 148.352 MHz
   Aspect Ratio : 16:9 Full Frame


         DVDO by Anchor Bay
```

Curtain Button

The iScan VP50PRO remote has a **Curtain** button which allows you to close a 'curtain' over the image. This feature is especially useful when an image is paused on a display susceptible to burn-in or a transition while switching inputs as part of a macro on a universal remote or automation system.

Discrete IR Codes and Serial Automation Protocol

Almost all commands that are available in the On Screen Display can be executed discretely using a programmable IR remote control or automation system connected via an RS232 serial connection. These codes are available at www.anchorbaytech.com

Non-Volatile Memory Settings

The iScan VP50PRO stores a variety of user settings in non-volatile memory. Non-volatile memory retains its contents when power is lost. There is one group of system settings and one group of user settings.

Installation Guidelines

Take special care with the iScan VP50PRO installation to ensure optimal performance. Pay particular attention to the bulleted items that begin below and to other precautions that appear throughout this guide.

Do . . .

- Install the iScan VP50PRO on a solid, flat, level surface such as a table or shelf.
  You can also install the iScan VP50PRO in a standard 19" equipment rack using an optional rack-mount kit available from authorized DVDO resellers or directly from DVDO.
- Select a dry, well-ventilated location.
- Use only the included external power supply.
- Avoid excessive humidity, sudden temperature changes or temperature extremes.
- Use only accessories recommended by the manufacturer to avoid fire, shock or other hazards.
- Unplug your VP50PRO before cleaning. Use a damp cloth for cleaning.

Don't . . .

- Install the iScan VP50PRO on an unstable surface or one that is unable to support all four of its feet, unless it is installed in an equipment rack.
- Stack the iScan VP50PRO directly above heat-producing equipment such as power amplifiers or other components that generate heat during use.
- Expose the iScan VP50PRO to a high temperatures, humidity, steam, smoke, dampness, or excessive dust. Avoid installing the iScan VP50PRO near radiators and other heat producing appliances.
- Install the iScan VP50PRO near unshielded TV or FM antennas, cable TV decoders, and other RF -emitting devices that might cause interference.
- Place the iScan VP50PRO on a thick rug or carpet or cover the iScan VP50PRO with cloth. This might prevent proper cooling.
- Attempt to service this unit. Instead, disconnect it and contact your Authorized DVDO Reseller or contact Anchor Bay Technologies directly.
- Open or remove unit panels or make any adjustments not described in this manual. Attempting to do so could expose you to dangerous electrical shock or other hazards. It may also cause damage to your iScan VP50PRO.
- Obstruct the front panel IR receiver window shown in "Remote Control Overview".
- Do not attempt to use the remote control out of line of sight with the IR receiver. Doing so will cause improper operation.

Front Panel Overview
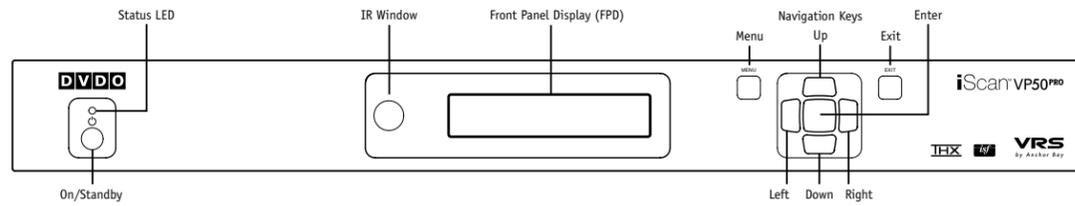
Status LED – This displays the current state of the iScan VP50[PRO]

Off = The unit is in standby mode

Red = No signal detected

Blue = The unit is processing the signal

Blinking Blue = There is a problem with HDCP authentication

Green = The unit detects an unsupported signal

Blinking Green = In Pass Through there is a problem with HDCP authentication

On/Standby Button – This toggles unit power between On and Standby.

IR Window – This is where all IR commands are received by the iScan. Do not obstruct this window.

Front Panel Display (FPD) – This is where all information from the on screen display (OSD) is duplicated to assist in the setup of your iScan.

NOTE: When navigating the Menu, the Front Panel Display (FPD) always shows the current selection on the bottom line and the menu/submenu item on the top line. When you change a value of a setting, the value is on the bottom line and the title of the parameter is on the top line.

Navigation Buttons – These buttons are available both on the front panel and on the remote control.

NOTE: Switching Inputs using the Navigation buttons – You can switch inputs on the front panel of the iScan VP50[PRO] or using the remote using the navigation buttons. To do this, press the ▼ or ▲ without pressing the **Menu** button first.

Back Panel Overview
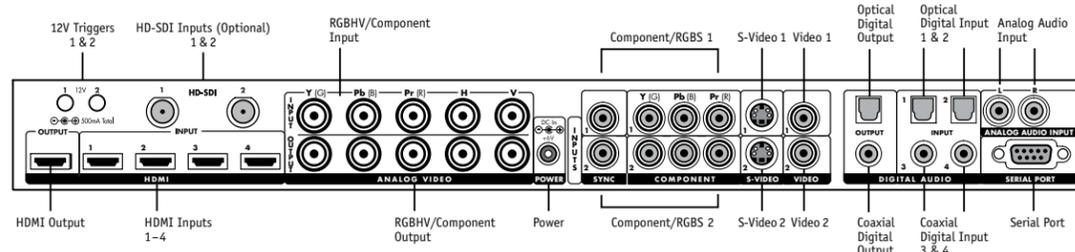
Video Inputs

The iScan VP50[PRO] has eleven (11) video inputs. Most popular formats are supported on each input.

Video Inputs

The iScan VP50[PRO] has eleven (11) video inputs.

The formats, colorspace and bit-depth that the inputs support are as follows:

- Video 1 and Video 2
  — Formats: NTSC, PAL, PAL-M and SECAM
- S-Video 1 and S-Video 2
  — Formats: NTSC, PAL, PAL-M and SECAM
- Component/RGBS 1 and Component/RGBS 2
  — Formats: 480i/p-60, 576i/p-50, 720p-50/60, 1080i-50/60
  — Colorspace: YPbPr and RGBS
- RGBHV/Component
  — Formats: 480p-60, 576p-50, 720p-50/60, 1080i-50/60, VGA/SVGA/XGA/SXGA-60
  — Colorspace: RGBHV and YPbPr
- HDMI 1, HDMI 2, HDMI 3 and HDMI 4
  — Formats 480i/p-60, 576i/p-50, 720p-50/60, 1080i-50/60, 1080p-24/25/30/50/60, VGA-60, SVGA-60, XGA-60, SXGA-60
  — Colorspace RGB/YCbCr 4:4:4/YCbCr 4:2:2
  — Bit-Depth: 8/10 processed   Up to 12-bit passthrough

Video Outputs

The iScan VP50[PRO] has two video outputs, one analog and one digital. The analog output on the iScan VP50[PRO] can output the following signal types:

- YPbPr (Component)
- RGBHV
- RGsB
- RGBS

The HDMI digital video output can output the following signal types:

- RGB 4:4:4
- YCbCr 4:2:2
- YCbCr 4:4:4

To connect the iScan VP50[PRO] to a display that has a DVI input, use either an HDMI-to-DVI cable or an adapter.

Audio Inputs

There are nine (9) audio inputs on the iScan VP50[PRO]:

- Two (2) Optical Digital inputs
- Two (2) Coaxial Digital inputs
- One (1) Analog (L/R) input
- Four (4) HDMI 1.3 inputs

While the digital and analog audio inputs can be assigned to any one of the video inputs, the HDMI audio inputs are tied directly to the HDMI video signal connected on the same input.

The iScan VP50^PRO accepts digital audio sourced from DVD players, satellite receivers, digital set top boxes, HD-DVD players, Blu-ray players, game consoles, and other video components with digital audio. These inputs are compatible with most consumer digital audio formats, including CD-Audio (44.1kHz/16 bit LPCM), Dolby Digital, and DTS. The coaxial digital audio inputs are compatible with any format with a sampling frequency between 24kHz and 192kHz, and with a data word structure up to 24 bits in length. The optical digital audio inputs are compatible with any format with a sampling frequency between 24kHz and 96kHz and with a data word structure up to 24 bits in length.

The HDMI audio inputs are compatible with all of the HDMI 1.3 audio formats.

Audio Outputs
There are two discrete digital audio outputs, one coaxial and one optical. Both are active at the same time, with the selected input audio stream.

The HDMI 1.3 output carries both audio and video.

12V Trigger Outputs
There are two 12-volt trigger ports that are designed to supply a combined total of 500mA.

RS232 Serial Connection
This connection is used as an interface to control the iScan VP50^PRO with an automation system and to update the software in the iScan VP50^PRO. The most current software version is available at www.anchorbaytech.com.

Power Supply Input

The iScan VP50^PRO comes with a 6V@7A AC-to-DC converter power supply, which accepts 100-240 VAC at 50/60Hz.

STEP 1 - Power Up

1. Attach the removable power cord to the external power supply.
2. Plug the removable power cord into a wall outlet or power conditioner, if applicable.
3. Plug the small connector attached to the cable that comes out of the power supply into the iScan. The iScan should power on and display 'DVDO iScan VP50^PRO / by Anchor Bay' on the Front Panel Display (FPD). If this does not happen, check all connections and verify that the power outlet does supply power with another device.

    IMPORTANT: Use only the power supply that came with your iScan VP50^PRO, or a replacement procured directly from Anchor Bay

STEP 2 - Connect the iScan to the Display

Displays with a DVI or HDMI Input
Based on the factory default settings, just connecting an iScan to a display with an HDMI or DVI input should complete this step as the default output is for the HDMI output to be active with a RGB 4:4:4 signal which is the standard signal for a DVI/HDMI connection. Press the **Menu** button once to confirm that you can see the On Screen Display (OSD).

Displays without a DVI or HDMI input:
Follow Steps 1-4 for a Component Input and Steps 1-8 for an RGBHV Input

Press the Menu button on the front panel of the iScan once. You should see 'MAIN MENU / INPUT SELECT' on the FPD.

1. Press the **Output Setup** button once. You should see 'MAIN MENU / OUTPUT SETUP' on the FPD.
2. Press the ▶ button. You should see 'OUTPUT SETUP / Analog/Digital' on the FPD.
3. Press the ▲ button and you should see 'Analog/Digital / HDMI (Digital)'. Press the ▲ button once so that 'Analog/Digital / BNC (Analog)' is displayed on the FPD. Press the Enter button.
4. You should now see the OSD
5. Press the ▼ button one time and you should see 'OUTPUT SETUP / Format' on the FPD.
6. Press the ▶ button one time to enter the Format menu.
7. Press the ▼ button until you see 'Format / VGA' and then press the Enter button.
8. You should now see the OSD

STEP 3 - Selecting the Optimal Output Resolution on the iScan for the Connected Display.

Once you have installed the iScan into the system, you must properly configure it for the display device being driven. If the OSD is not visible on the display's screen when you press one of the menu or sub-menu (Output Setup/Config./Picture Control/Input Adjust) buttons on the remote control, then you must complete Step 2 before continuing.

Determine the optimal output resolution to set the iScan to get the best picture from the display. To do this correctly, the native resolution or maximum resolution of the display must be known. Native resolution refers to the actual pixel count of a fixed pixel display. Fixed pixel display technologies include plasma, LCD, DLP and LCoS. CRT-based technologies use scan lines so they do not have a native resolution but they do have a maximum resolution.

Keep in mind that some displays do not accept their native resolution and almost all HDTVs will accept 720p and 1080i resolutions, but no fixed pixel display has a native resolution of 1080i. In almost all cases, the picture will be better if one of these displays is sent a 720p signal instead of a 1080i signal.

To change the Output Resolution, press the Output Setup button on the remote and navigate down to 'Format'. Press ▶ once and select the desired output resolution.

Output Setup ⇨ Format ⇨ (Make Selection)

These are the most likely resolutions for the available display technologies.

Plasma	37-43" – 852x480, 1024x768 and 1024x1024
	50-65" – 1280x768, 1360x768, 1365x768, 1366x768, 1080p-24/48/60
DLP	Rear Projection – 720p-60 1080p-24, 1080p-60
	Front Projection – 852x480, XGA, 720p-60, 1080p-24/48/60
LCD	Rear Projection – 720p-60 and 1366x768
	Front Projection – XGA, 720p-60 1366x768 and 1080p-24/60
	Direct View – XGA, 720p-60, 1366x768 and 1080p-60
LCoS/SXRD	Rear Projection – 720p-60, 1366x768 and 1080p-60
	Front Projection – XGA, 720p-60, 1080p-24/60, 1400x788 and 1400x1050
CRT	Rear Projection – 480p, 540p and 1080i-60
	Front Projection – 720p-60, 1080p-60, 1280x960, 1440x960 and 1440x1152

NOTE: Driving a CRT front projector beyond its capabilities may cause damage. Check with Anchor Bay if you are unsure of the display's capabilities.

Test Patterns to Use:
Frame Geometry (Adjusting for Overscan)

When this test pattern is displayed correctly, there should be a one-pixel wide white border around the edge of the screen: If it is not sized correctly, it means that the display is overscanning the input signal. This is very common and is known for cutting off sports scores at the bottom of the screen. Use the 'Underscan' control to shrink the size of the output image so that you can see all of the active area of the signals coming from your sources. If it is also not positioned correctly, use the 'Image Shift' controls to position it correctly. These controls are available under the Aspect Ratio setting in the Output Setup menu.

Checkerboard (Verifying if Display's Processing Can Be Bypassed)

When the checkerboard test pattern is displayed correctly, close up you should be able to see a 1-pixel checkerboard and at proper viewing distance the image should appear as an even gray. If the display is CRT-based you will not see this checkerboard, but the screen should be an even gray. When this test pattern is displayed incorrectly, the resulting image does not look like a fine checkerboard and may have irregular patterns. When this is the case, the chosen output resolution may not be the native resolution of the display or the display may scale all input signals even if the input resolution is already at native resolution. Check to make sure that the output resolution selected on the iScan

is the correct output resolution for the display. Also check to make sure that the display is in the correct Aspect Ratio mode, which may be causing the display to do additional unnecessary scaling. The correct mode may be called 'Native', 'Dot-by-Dot', 'Full', or 'Anamorphic'.

> **NOTE:** If this test pattern does not appear as it should, and you have chosen the native resolution of the display, you may not be able to bypass the internal processing on the display. This does not mean that the iScan can not still make an improvement in the image quality. In these cases select the closest output format to the display's native resolution.

Vertical Lines

The 'Vertical Lines' test pattern should appear as one pixel wide black and white columns. If you see any irregular pattern(s) in the image, you know that the display is scaling the signal horizontally.

Horizontal Lines

The 'Horizontal Lines' test pattern should appear as one pixel tall black and white rows. If you see any irregular pattern(s) in the image then you know that the display is scaling the signal vertically.

STEP 4 - Connecting Your Sources

Up to 11 video sources can be connected to the iScan VP50PRO

Use the following suggestions for connecting several popular sources to the iScan

> SD-DVR/STB – S-Video/Composite and Optical/Coaxial/Analog audio
> HD-DVR/STB – HDMI or DVI/Component and Optical/Coaxial audio
>
> DVD Player/Recorder – HDMI or DVI/Component and Optical/Coaxial audio
> HD-DVD Player – HDMI or Component and Optical/Coaxial audio
> Blu-Ray Player - HDMI or Component and Optical/Coaxial audio
> VCR – Composite/S-Video and Analog audio
> LD Player – Composite/S-Video and Optical/Coaxial audio
>
> Xbox – Component and Optical audio
> Xbox360 – Component/RGBHV and Optical audio
> Xbox360 Elite – HDMI or Component and Optical audio
> PS2 – Component and Optical audio
> PS3 – HDMI or Component and Optical audio
> Wii – Component and Optical audio
>
> Apple TV – HDMI or Component and Optical audio
> HTPC – HDMI or DVI and Optical/Coaxial audio

STEP 5 - Configuring the Input sources to get the maximum performance
S-Video and Composite connections do not need to be setup the correct output resolution because they only support standard definition resolutions, 480i or 576i. HDMI, DVI and Component outputs need to be properly setup on each source to get the best performance. You can verify the resolution that the iScan is receiving from the source by pushing the **Info** button.

Set Top Boxes

DirecTV HR10-250 (HD-TiVo)

The HD-TiVo does not allow the User to select one output setting that will always output the right resolutions under the right conditions. For example, when tuned to an SD channel the output resolution should be 480i, but when tuned to an HD channel the resolution should be 720p (FOX, ABC, ESPN) or 1080i (all other HD channels). There is no, to very limited, 480p content. The HD-TiVo can be set up to output only 480i, 720p and 1080i when the User presses the **Up** button on the TiVo remote control.

DirecTV Central ⇨ **Messages & Settings** ⇨ **Settings** ⇨ **Video** ⇨

Output Format – Up Arrow Setup

SA8300HD Cable HD-DVR

1. With the DVR powered Off, press the **Guide** and **Info** buttons at the same time. The HDTV Setup Wizard screen appears.

2. Select the Advanced Setup option (press **B**)

3. Make sure that Display Aspect Ratio is set correctly (more than likely, 16:9)

4. Follow the on-screen instructions to select compatible picture formats. Select 480i, 720p, and 1080i

5. After saving the picture formats, press **EXIT**.

6. Press **POWER** to turn on box.

7. Press **Settings** twice. The **General Settings** menu appears.

8. Press **Move Up** or **Move Down** to highlight **Set: Picture Format**.

9. Press **Move Right** to highlight the picture format setting.

10. Press **Move Up** to select **Pass-Through** for Component video connection, and **AutoDVI/HDMI** for HDMI/DVI Connections.

11. Press **Accept A** to use this option for the 8300HD. The DVR front panel displays **AUTO**, plus the scan rate you are viewing (for example, 1080i).

12. Press **Exit**.

DCT6412 Cable HD-DVR –

1. Make sure system is turned on.

2. Put the STB in standby by pushing the **Standby** button on the Comcast remote or by simply hitting the **Power** button on the front panel of the cable box.

3. Push the Menu button to enter the "User Settings" menu

4. Ensure that:

    — "TV Type" is set to 16:9

    — "YPbPr Output" to "1080i"

    — "4:3 Override" to "480i"

Optical Disc and Other Prerecorded Media Sources

DVD Player/Recorder – Configure the DVD player to output 480i on the HDMI, DVI, or Component connection. HDMI is the recommended connection if available. If the DVD player can not be configured to output 480i over one of these connections, configure it to output 480p and insure that you have turned PReP 'On' for this input. **See Step 6**

HD-DVD Player – Configure the BD player to output 1080p-24 (if the player allows), if not use 1080i-60 and the 'Forced 3:2' mode. **See Step 6**

Blu-Ray Player – Configure the BD player to output 1080p-24 (if the player allows), if not use 1080i-60 and the 'Forced 3:2' mode. **See Step 6**

Game Consoles

Xbox – Configure the Xbox to output all resolutions (480i, 480p, 720p and 1080i).

Xbox360/360Elite – Configure the Xbox360 to output 720p.

PS2 – Configure the PS2 to output 480i only and use Game Mode 1 or 2. **See Step 6**

PS3 – Configure the PS3 to output all resolutions. Use Game Mode 1 or 2 for 1080i. **See Step 6**

Wii – Configure the Wii to output 480p

Other Digital Media Devices

Apple TV – Configure the Apple TV to output 480p

HTPC – Depending on the capabilities of the video card, configure the HTPC to output 720p or 1080p. The higher the output resolution for the PC, the better text will look on screen.

STEP 6 – Deinterlacing Mode and PReP™

The iScan has a very high performance 'Auto' deinterlacing mode which can handle most content. There are specific modes which are optimal for Gaming and HD-DVD/Blu-Ray players that do require initial setup. Once these settings are made, they are saved into non-volatile memory. Each input has a separate memory for each of the accepted input resolutions. For example, the HDMI inputs accept all of these resolutions:

480i, 480p, 576i, 576p, 720p, 1080i, 1080p-24, 1080p-60, VGA, SVGA, XGA, SXGA

A source like an HD-TiVo can output 4 resolutions over HDMI (480i, 480p, 720p and 1080i). Although there are 12 memories on the HDMI inputs, only 4 would be used by the HD-TiVo and they would automatically recalled when any one these 4 input resolutions is detected on that HDMI input.

Game Mode 1 and Game Mode 2

Use these modes to get high performance low latency deinterlacing. Game Mode 1 has less than motion-adaptive processing with less than 1 frame (17milliseconds) of delay and Game Mode 2 has less than 2 frames of delay with additional edge-adaptive processing for a slightly smoother picture. These modes are recommended for any connected game console that is outputting a 480i or 1080i signal.

Input Adjust ⇨ **Deinterlacing** ⇨ **Game Mode 1 and Game Mode 2**

PReP

Many DVD players and set top boxes do not output a 480i signal, using an HDMI/DVI or component connection. Anchor Bay's Progressive ReProcessing can reprocess this signal and still improve the previously poorly deinterlaced signal. For these sources it is recommended that you set PReP to 'On'.

Input Adjust ⇨ **PReP** ⇨ **On**

Forced 3:2 Mode

This mode is perfect for HD-DVD and Blu-Ray players that output a cleanly encoded 3:2 signal over the entire length of a movie. This insures the highest performance playback from these high quality sources. If you intend on setting up the iScan to output a 24Hz, 48Hz, or 72Hz signal for film-based content this mode is highly recommended.

Input Adjust ⇨ Deinterlacing ⇨ Forced 3:2

STEP 7 – Assigning Audio Inputs to Video Inputs

The iScan features an audio delay function to exactly match the video delay incurred by the video processing. The iScan accepts four discrete digital audio inputs, two optical (Audio 1, 2) and two coaxial (Audio 3 and 4) inputs, one analog audio input and four HDMI audio inputs (3 on the iScan VP20). By default, no audio inputs are assigned to any video inputs. To assign an audio an input to a video input, first select the video input using the remote control or front panel controls and then select the audio input.

Input Adjust ⇨ Audio Input ⇨ (Make Selection)

> **NOTE:** If an analog video input is selected, the HDMI option will not be available. An audio input can be assigned to multiple video inputs, but a video input can not have multiple audio inputs assigned to it.

> **NOTE:** There are some HDMI sources that do not output the correct audio signal when connected to an HDMI repeater, like an AV receiver or video processor. In these instances, we recommend that use an alternative method of sending audio, like the optical or coaxial digital audio outputs.

Insure that the audio output from the iScan is connected to the AV Receiver/Processor. Note that both the optical and coaxial outputs are active simultaneously. Also note that multi-channel PCM audio, like that encoded on HD-DVD and Blu-Ray must be transmitted by HDMI, as optical and coaxial are incapable of carrying these formats. Make sure that HD-DVD or Blu-Ray Player is outputting bitstream only if the AV receiver does not have an HDMI audio input. If the AV Receiver does have an HDMI input, connect the HDMI output from the iScan to the AV Receiver and the output from the AV Receiver to the display. If there is no picture displayed, revert to using optical or coaxial digital audio. Some AV receivers are incapable of passing high resolution video signals (1080p).

STEP 8 – Display Optimization – Using Display Adjustments

The iScan VP50^PRO has several test patterns to assist in the setup of the display. Adjustments should be made on the display, not on the iScan, to correctly setup the iScan and display.

Gray Ramp

The 'Gray Ramp' can help verify that the display is showing the gradients between black and white correctly. You should see a smooth transition between black and white with this test pattern. If there is banding on the extreme right and left of this test pattern with 'Video' Output Levels, change the 'Output Levels' to 'PC'.

Brightness/Contrast

The 'Brightness/Contrast' test pattern will assist you in setting up both the brightness (black level) and contrast (white level) of the display. The 'Brightness/Contrast' test pattern is composed of 4 quarter-screen blocks. Two of the blocks have a background level of standard black and the other two blocks have a background level of standard white. Embedded in the black blocks are 3 bars.

One is 4 IRE below black (blacker-than-black), one is 1 IRE above black, and the third is 2 IRE above black. Embedded in the white blocks are 3 bars. One is 1 IRE above white (whiter-then-white), one is 1 IRE below white, and the third is 2 IRE below white. The bottom two blocks differ slightly from these levels. For the bottom two blocks, the blacker-than-black is at the lowest possible luma level and the whiter-than-white bar is at the highest possible luma level. When the brightness and contrast are adjusted correctly, you should be able to see the 1 IRE and 2 IRE above black bars on the black background and the 1 IRE and 2 IRE below white bars should be visible on the white background. When the brightness is adjusted correctly, black objects should appear 'black' with the details still intact and lighter areas should be 'light', not gray, with the details still intact. When the contrast is adjusted correctly, white objects will appear 'white' with the details still intact. Because the contrast settings can affect brightness settings we recommend that you check the brightness setting after making this adjustment.

> **NOTE:** If you have a CRT based display, following the instructions above may yield a contrast setting too high. If the contrast is set too high, you will get blooming and loss of details in the highlighted areas. It is more helpful to use the two vertical lines in the test pattern. Adjust the contrast up and down and you will notice that these lines will bend as you increase the contrast. To properly adjust contrast on a CRT based display, decrease the contrast until the vertical lines start to straighten out. If possible, the two lines should be straight. On some CRT, the lines may not straighten even if you turn the contrast to its minimum. If this is the case, slowly increase the contrast to a point just before the vertical lines have extreme bending. You have now properly set up the contrast of the display. Continue to set up brightness as detailed above.

Color Bars 75 and Color Bars 100

The 'Color8 Bars75' and 'Color8 Bars100' will assist in setting up the saturation (color) and hue (tint) of the display. The 'Color8 Bars75' test pattern consists of 8 vertical bars across the screen at a 75% saturation level. The 'Color8 Bars100' test pattern consists of 8 vertical bars across the screen at a 100% saturation level. From left to right the bars are: white, yellow, cyan, green, magenta, red, blue, and black. To properly adjust the saturation and hue you will need to use the blue colored filter that comes with AVIA. You will also need to turn off any automatic flesh tone controls on the display before making these adjustments. When the Saturation and Hue are adjusted correctly, the white bar and the blue bar should be exactly the same shade when looking through the blue filter. Saturation and hue settings interact with each other so after making this setting you may want to go back and check that the saturation setting is correct.

STEP 9 – Source Optimization – iScan Adjustments

To get the best performance out of each of the sources you should individually calibrate each input specifically to the connected source. In this section, all picture control adjustments are made using the iScan's picture controls. Keep in mind that if you replace a source with a new component you will also want to recalibrate the input. To calibrate each source correctly you will need the source to output a reference test pattern similar to what is built in to the iScan. For sources like DVD, LD and D-VHS, this content is readily available. But for a source like HD satellite or cable, these test patterns are played on channels like HDNet at off hours. So if you have a DVR, Anchor Bay recommends that you record these test patterns.

VRS Optimization & Evaluation DVD

This DVD will assist in setting up the input to which the DVD player is connected. Anchor Bay recommends that you use a digital connection, DVI or HDMI, or a high quality analog connection, like component video. Don't use S-Video or Composite video for a higher quality source like DVD. Before calibrating the input for the DVD player, make sure that the DVD player is set to '16:9' output, not '4:3'. You will also want to turn off any extraneous features like noise reduction which may add more noise than help. Set all picture settings on the DVD player to either 'Off', 'default', or '0'.

The iScan has several 'Half Test Patterns' that can be brought up while the matching test patterns are played from the VRS DVD. The test patterns to use on the DVD are listed below. The matching test patterns can be found in the 'Configuration' menu (Configuration □ Test Patterns).

Static Patterns ⇨ **Half Patterns** ⇨ **Black and White**

Color (7) Bars 75

Color (7) Bars 100

Color (8) Bars 75

Color (8) Bars 100

Adjusting for Overscan per Input

Overscan can be adjusted individually on each input. Overscan tends to be most problematic with standard definition broadcast signals from terrestrial, cable or satellite. Overscan can also be needed with game consoles. Check each output resolution from the source and adjust the Overscan, as needed.

Setting Up and Recalling Display Profiles

Up to 10 Display Profiles can be defined and recalled. A Display Profile is a memory which holds all of the parameters that are defined in the 'Output Setup' menu. Display Profiles can be used to drive two different displays, like a plasma for day usage and a front projector for night usage that need different output settings, or to drive a single display with different settings, one setting optimized for NTSC and one optimized for PAL. To use the Display Profiles, first set up all Output Settings and then save the Display Profile.

Output Setup ⇨ **Display Profiles** ⇨ **Save**

Once a Display Profile is saved, it can be recalled using the **Display Profile** button on the remote control, or by navigating the OSD.

Output Setup ⇨ **Display Profiles** ⇨ **Select**

Setting up the iScan for a 2.35:1 Constant Image Height Configuration

The iScan VP50PRO can be configured to work in conjunction with an anamorphic lens. The most common configuration with one of these lenses is a 2.35:1 screen with a 16:9 projector. This lens can be fixed or motorized. If the lens is motorized, it should only be used when viewing 2.35:1 content. The motorized lens should be connected Trigger #2 on the back of the VP50PRO. The correct output aspect ratio setting for this configuration is 'Lens' option 'Mode 1 – Auto' and the correct '12V Trigger 2' setting is 'Lens'.

Advanced Control — Setting up the iScan to Output 24Hz/48Hz (For Film-Based Content)

Some displays, mostly front projectors, can display a 24, 48 or 72Hz signal (which is a multiple of film's 24 frames per second). To verify if the connected display can accept one of these framerates use the 'Judder' test pattern. This pattern displays a bar that bounces back and forth at the chosen output frequency selected in the 'framerate' parameter. When this test pattern is displayed correctly, the bar moves smoothly across the screen and bounces from side to side. When this pattern is displayed incorrectly, this bar may 'tear' as it moves across the screen. If your display does accept 24Hz or 48Hz a 'Display Profile' should be saved for viewing film-based content in addition to a standard 50/60Hz video 'Display Profile'.

Input Select

There are eleven video inputs on the iScan VP50PRO:

- VIDEO 1 - Video 1 (Composite)
- VIDEO 2 - Video 2 (Composite)
- S -VIDEO 1 - S -Video 1
- S -VIDEO 2 - S -Video 2
- COMPONENT 1 - Component/RGBs 1
- COMPONENT 2 - Component/RGBs 2
- RGBHV – RGBHV/Component
- HDMI 1 - HDMI 1
- HDMI 2 - HDMI 2
- HDMI 3 - HDMI 3
- HDMI 4 – HDMI 4
- AUTO - Automatic active input detection and selection

These inputs can be accessed in five different ways:

- Using the front panel using the ▲ and ▼ buttons
- Using the remote control with the direct access buttons
- Using a universal remote programmed with the discrete codes
- Using the OSD from the front panel or from the remote to access the Input Select menu
- Using RS232 Serial Automation Protocol described in the appendix.

Input Aspect Ratio Control

The Input Aspect Ratio control selects the aspect ratio for the current input signal. The iScan VP50PRO automatically converts from the selected input aspect ratio to the selected output aspect ratio.

The Input Aspect Ratio control selects the aspect ratio for the current input signal. The iScan VP50PRO automatically converts from the selected input aspect ratio to the selected output aspect ratio.

Push the **Aspect** button once to show the current input aspect ratio control function. To cycle through the available functions, push the **Aspect** button repeatedly.

For the Input AR function, push the ▲ or ▼ button once to show the current setting. Push either of these buttons again to cycle through the available aspect ratios. Push the **Exit** button to exit the menu and go back to the Input Aspect Ratio selection.

For the Zoom, Pan and Borders functions, push the ▲ or ▼ button to select the two control settings available: horizontal and vertical. Push the **Enter** button to adjust each setting.

- Push ▲ and ▼ to increase or decrease the setting.
- Push Exit again to exit this mode.

NOTE: The Zoom and Pan functions are applied to the input signal, not the output. This is an important consideration, especially for the Pan function. For example: If you do not zoom a full frame image more than 100%, there is nothing to pan. However, if part of the image is not on the screen, then the Pan function will work.

The VP50PRO's menu is exit automatically after 30 seconds of no user interaction.

Video input signals are usually classified in the following two ways:

- Frame Aspect Ratio
- Active Input Aspect Ratio

Frame Aspect Ratio

Frame Aspect Ratio (FAR) consists of two possible ratios: 4:3 or 16:9. DVD discs encoded in a 16:9 frame are sometimes referred to as anamorphic or enhanced for widescreen TV's. For example, a non-anamorphic widescreen DVD has a FAR of 4:3.

Active Aspect Ratio

Active Aspect Ratio (AAR) is the aspect ratio of the image or content (movie). This content is typically stated on the back cover of DVD discs. Some common active aspect ratios are as follows:

    1.33:1 (4:3)
    1.55:1
    1.66:1
    1.78:1 (16:9)
    1.85:1
    2.35:1

To use aspect ratio's in addition to these, the iScan VP50PRO provides the option to choose a custom aspect ratio called 'User' with a range of 1.01:1-3.00:1.

Panorama

The Panorama function displays a 4:3 image in a non-linear stretch mode on a 16:9 display. This can be useful for extended viewing of this content on a display susceptible to bun-in, like a plasma or CRT.

iScan Image Mapping

The situation when the Frame Aspect Ratio (FAR) is the same as the Active Aspect Ratio (AAR) is sometimes called Full Frame. This situation is illustrated below.

The iScan VP50PRO maps the AAR to the Output Aspect Ratio (OAR) in the following three ways:

- When the AAR is greater than OAR, the iScan VP50PRO puts up Borders at the top and bottom as shown below:

Active Input Area — Borders

- When the AAR is less than the OAR, the iScan VP50PRO puts up Borders on the left and right as shown below:

Active Input Area — Borders
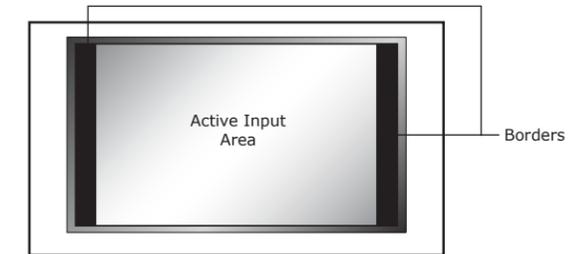
- When the AAR is equal to the OAR (Output Aspect Ratio), the iScan VP50PRO supplies no border as shown below:

Active Input Area
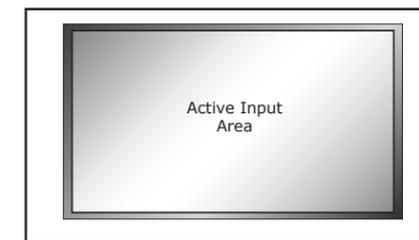
Zoom

The Zoom function zooms in on or magnifies the image on your display. The minimum zoom is 100%, (no zooming); the maximum zoom is 150% (zoom magnification factor of 1.5X). Zoom controls can be accessed by using the OSD or by using the direct access button on the remote control. On the remote control, push the **Zoom** button followed by the ▲ / ▼ buttons to vertically zoom the image or the Left/Right buttons to horizontally zoom the image. The amount of horizontal and vertical adjustment will be displayed on the front panel display.

Using the OSD, select the control that you would like to adjust, Horizontal or Vertical zoom, and push the **Enter** button to show the current Zoom setting. Push the ▲ and ▼ button to increase or decrease the zooming factor. Zoom can only increase the size of the image.

> **NOTE:** The Zoom and Pan functions are applied to the input signal, not the output. This is an important consideration, especially for the Pan function. For example: If you do not zoom a full frame image more than 100%, there is nothing to pan. However, if part of the image is not on the screen, then the Pan function will work.

Pan

The Pan function allows the image to be shifted up, down, left and right. Note that the Pan function can only be used after the image has been zoomed to any value greater than 100%. Pan controls can be accessed by using the OSD or by using the direct access button on the remote control. On the remote control, push the Pan button followed by the ▲ / ▼ buttons to vertically pan the image or the ◄ / ► buttons to horizontally pan the image. The amount of horizontal

and vertical adjustment will be displayed on the front panel display. Using the OSD, select the control that you would like to adjust, Horizontal or Vertical pan, and push the Enter button to show the current Pan setting. Push the ▲ and ▼ button to increase or decrease the panning factor.

Borders

The Borders function allows you to add horizontal and/or vertical borders around the image. These borders obscure part of the input image. Certain input-to-output aspect ratios already result in left/right or top/bottom border being added. This control allows the system-generated borders to be extended, or for borders to be added when none exist. As the borders are adjusted (see below) the iScan temporarily increases the gray level of the borders so that they are visible during the adjustment process. The level will return to normal after the adjustment has ceased.

Horizontal Border Control: Push the ▲ button to move the left and right borders towards the middle of the image, increasing the border width and cutting off the sides of the input image. Push the ▼ button to move the left and right borders away from the image and decreases their width. If there are system-generated left/right borders already present (for example, when the input aspect ratio is 4:3 and the output aspect ratio is 16:9), the border width cannot be decreased beyond the base width created by the aspect ratio conversion.

Vertical Border Control: Push the ▲ button to move the top and bottom borders towards the middle of the image, increasing the border height and cutting off the sides of the input image. Push the ▼ button to move the top and bottom borders away from the image and decrease their height. If there are system-generated top/bottom borders already present (for example, when the input aspect ratio is 16:9 and the output aspect ratio is 4:3), the border height cannot be decreased beyond the base height created by the aspect ratio conversion. Borders are automatically added by the system when the Active Input Aspect Ratio is not the same as the Output Aspect Ratio as explained earlier in this guide. However you can add more borders using the Borders menu.

Presets

You can specify the Input Aspect Ratio by using the Presets or Manually.

Using Presets

You can use Presets with either the OSD or the Remote Control **Input Aspect Ratio** button. Refer to the Preset sub-menu in the Input AR menu for doing this with the OSD. The remote control operation is described below.

- **4:3** Selects 4:3 Full Frame without OSD.
- **16:9** Selects 16:9 Full Frame without OSD.

Pushing the **Input Aspect Ratio** button repeatedly toggles between 4:3 Full Frame, Letterbox, 16:9 Full Frame, 4:3 Stretch, and Preset 1 through Preset 10 and User. You can also navigate through these presets using the ▲ and ▼ buttons, along with **Enter** to confirm the selection.

The ten user-defined preset value selections (Preset 1 - 10) are stored in non-volatile memory and are always available.

Each of these presets consists of the following:

- Frame Aspect Ratio
- Active Input Aspect Ratio
- Zoom parameter
- Pan parameter
- Borders

The User preset selection is also stored in non-volatile memory. However the User selection is always updated after you modify any pre-defined aspect ratio setting. In order to permanently keep a custom aspect ratio setting, you must save it to one of the four preset selections.

Setting the Input Aspect Ratio Manually

You can set the following parameters manually:

- Frame Aspect Ratio
- Active Input Aspect Ratio
- Zoom parameter
- Pan parameter
- Borders

Save User-defined presets as follows:

- Customize the aspect ratio manually (refer to Setting the Input Aspect Ratio Manually above).
- Select one of the presets from the 'Save User To' menu. Confirm the action by selecting Yes.
- There are 10 user-definable presets available.

NOTE: Be careful, because saving to a preset deletes the previous preset. If you have not customized the aspect ratio, and the current aspect ratio settings are the same as a system defined preset. In this case, the system will not allow you to save the preset setting.

Input Adjust Control

Push the Input Adjust button once to show the current input adjustment function. You can cycle through the available functions by pushing this button repeatedly.

Mosquito Noise Reduction

The iScan VP50PRO has Mosquito Noise Reduction to reduce random noise that appears along the edges of compressed images. There are four settings to this control: Off, Low, Medium, and High. The default setting for this control is 'Off'. This is a setting that is saved on a "per input/per format" basis.

Deinterlacing

There are several deinterlacing modes available on the iScan VP50PRO. This is a setting that is saved on a "per input/per format" basis. The functions of these modes are described below:

- **Auto** – This mode is the default. 'Auto' represents the best balance between automatic detection of film and video sources, bad edit detection, and identification of mixed-mode sources. This mode should be used when the content may be a mix of film and video content or you are not sure.

- **Film Bias Mode** – This mode is intended for use on content that is known to be film-based.

- **Video Mode** – This mode is intended for use on content that is known to be video-based.

- **Forced 3:2 –** This mode is intended to be used with 'high-quality' film sources like HD-DVD and Blu-Ray. This forced cadence mode is definitely useful for watching a movie from start to finish but they are less useful for content with a lot of bad edits, and also if you're going to be skipping around a lot between chapters.

- **Forced 2:2 –** This mode is intended to be used with 'high-quality' film sources like HD-DVD and Blu-Ray. This forced cadence mode is definitely useful for watching a movie from start to finish but they are less useful for content with a lot of bad edits, and also if you're going to be skipping around a lot between chapters.

- **2:2 Even** – This mode should be used when the user knows that the source is high-quality 2:2 pulldown (i.e. film-based content played back in a country with a 50Hz video standard) and wants to avoid any loss of cadence lock while watching that source. This mode weaves two adjacent fields together with an even field and combining it with the following odd field. This will provide a higher quality overall signal than the 'Auto' or 'Film Mode' settings, providing that the source really is 2:2 pulldown and does not have bad edits. Only one of the '2:2' Deinterlacing settings is correct for any given source and the correct mode can be chosen by simply trying both of them and selecting the one which does not result in combing artifacts.

- **2:2 Odd** – This mode is very similar to '2:2 Even' except that that this weaves two adjacent fields together starting with an odd field and combining it with the following even field.

- **Game 1** – This mode is intended for use with game consoles (like those from Sony, Microsoft and Nintendo). This mode gives you minimal latency with edge-adaptive processing. The total amount of delay with source-locked output mode set on the VP50PRO is about half a frame of delay. Unlocked frame rates will increase this delay.

- **Game 2** – This mode is intended for use with game consoles (like those from Sony, Microsoft and Nintendo). This mode gives you minimal latency with both motion and edge-adaptive processing. The total amount of delay with source-locked output mode set on the VP50^PRO is about one and a half frames of delay. Unlocked frame rates will increase this delay.

PReP™, Progressive ReProcessing

PReP is a video processing technology, which is exclusive to Anchor Bay that converts a progressive signal to its original interlaced format so that it can be subsequently deinterlaced by Anchor Bay's Precision Deinterlacing. With PReP, in addition to performing an outstanding job deinterlacing interlaced formats, an iScan VP50^PRO can now improve a previously poorly deinterlaced progressive format. PReP works with 480p, 576p, 1080p/50 and 1080p/60. Turning PReP 'On' and 'Off' allows the user to compare the deinterlacing done by the source versus the deinterlacing done by the VP50^PRO. The default for this setting is 'Off'. This is a setting that is saved on a "per input/per format" basis.

Passthrough

The iScan VP50^PRO can pass signals through as well as process them. With some signals, like those coming from a PC, no processing may be desired in which case this setting can be set to 'On' to allow this signal to pass through the VP50^PRO. Note that if an analog signal is passed through the VP50^PRO there will be no video output on the HDMI output, and vice versa. This mode can also be used to see the signal processed by the VP50^PRO versus the processing done by the display. The default for this setting is 'Off'. This is a setting that is saved on a "per input/per format" basis.

Overscan

The Overscan function scales the input image proportionally in both vertical and horizontal dimensions by the user-specified overscan factor. The purpose of Overscan is to remove unwanted image portions around the perimeter of the image. The default overscan value is 0, which means 100% of the input image is shown. The maximum overscan value is 20 which means the input image is scaled up by 120%. This is a setting that is saved on a "per input/per format" basis.

To adjust the overscan level:

1. Push the ▲ or ▼ button. The current level is shown.

2. Push the ▲ or ▼ button to decrease or increase the amount of overscan.

3. The Overscan value is applied to all input aspect ratios and is independent of the Zoom value.

Image Shift

The Image Shift adjustment allows the user to vertically and horizontally adjust the image, when the input signal is 480i/576i on the SDI or HDMI inputs or a PC resolution on the analog BNC input. This function can be set independently for different input formats. The default setting for the horizontal and vertical shifts is midrange, 0.

Color Space

The color space setting allows the user to specify what the input signal is on the HDMI inputs.

- RGB
- YCbCr 4:2:2
- YCbCr 4:4:4
- Auto

For the BNC inputs the options are:
- RGB(H+V)
- YPbPr

Input Level

The input level setting allows the user to specify the levels of the input signal, either Video (16-235) or PC (0-255). This control only works with an input signal that has RGB color space.

- Video
- PC

VCR Mode

VCR Mode decouples the output timing completely from the input timing to ensure a stable output from the iScan VP50^PRO for VCR playback especially during trick-play modes (play forward, play reverse, still/pause). This mode is available on the composite and S-Video inputs.

- **On** – Output timing is decoupled from the input timing regardless of Frame Rate settings.
- **Off** – Output timing is dependent on Frame Rate settings.
- **Auto** - Turns on VCR Mode if a VCR source is detected. This is the default setting.

HDMI Config.

HDCP Mode

There are two HDCP modes:

- **Off:** HDCP is disabled at the iScan VP50^PRO's HDMI input. Some sources turn off HDCP in this case and the iScan VP50^PRO drives a non-HDCP DVI display or an analog display.
- **On:** The iScan VP50^PRO continuously looks for a HDCP source on its HDMI input. This is the default setting.

NOTE: The iScan VP50^PRO is not designed to remove HDCP from a protected signal. If this setting is set to 'On' make sure that the corresponding HDCP Mode setting on the output is also set to 'On'

Auto AR

In addition to carrying audio and video, HDMI can carry other information, like aspect ratio (AR). If you would like the iScan VP50^PRO to automatically set the AR based on the information on the HDMI signal, than set this setting to 'On.' This AR information can be wrong or implemented incorrectly, so this setting is defaulted to 'Off'.

Auto Color Space

In addition to carrying audio and video, HDMI can carry other information, like color space. If you would like the iScan VP50^PRO to automatically set the AR based on the information on the HDMI signal, than set this setting to 'On', which is the default. If this setting is set to on, the 'Colorspace' adjustment will be unavailable.

Auto Input Priority Selection

The Auto Input Priority Selection function assigns different priorities to the video input's automatic active video selection mode (AUTO in Input Select menu). First select the video input then change the priority of that input.

1 - Press the ▼ button. The first video input VIDEO 1 is shown.

2 - Press the **Enter** button to view the current priority of the selected input.

3 - Press the ▲ or ▼ button to change the priority of the selected input.

4 - Press the **Exit** button again to complete the priority assignment.

5 - Repeat Steps 1 through 4 to select the next video input and adjust the priority setting.

Audio Input

The Audio Input function assigns an audio input to the currently selected video input. Four digital audio inputs and a single analog audio input are available. The HDMI inputs can accept both audio and video. To assign the audio input to another video input, push the ▲/▼ buttons. The front panel display (FPD) shows the current setting. For more info about how to assign an audio input to a video input, refer to **Audio Input Operation**.

AV Lip Sync™

The iScan VP50PRO automatically delays the input audio to match the video processing delay. You can choose to increase or decrease the audio delay by changing this setting. Push the ▲ or ▼ button to display the current additional bias delay setting (default 0). Up to 200 milliseconds of delay can always be added to the audio signal after the iScan has compensated for the video delay. Use the ▲ or ▼ button to increase or decrease the delay in milliseconds.

> **NOTE:** The total audio delay cannot be less than 0, that is, the iScan cannot have negative audio delay. If you choose to decrease the automatic delay setting by a certain amount, this value could be changed by the iScan in situations where the iScan's calculated delay plus the specified additional delay results in a value less than 0.

Picture Controls

For each input there are different picture memories for each accepted input resolution. These memories are accessed automatically when an input resolution is detected.

Fine Detail Enhancement

This control enhances the fine detail in images. Fine detail can be sharpened by adjusting the control into the positive range, up to 50, and it can be softened by adjusting this control into the negative range, down to -50. The default setting on this control is midrange, 0.

Edge Enhancement

This control enhances the sharpness of images on the edges. Edges can be sharpened by adjusting the control into the positive range, up to 50, and they can be softened by adjusting this control into the negative range, down to -50. The default setting on this control is midrange, 0.

Brightness

This control adjusts the brightness (black level) of the overall image output from the iScan VP50PRO. If you turn it up too high, it may make black look gray. In general, you should adjust this up until you see the black areas of your display turn gray and then back it down just below that point. The default setting is midrange, 0.

Contrast

Contrast adjusts the ratio between white and black signal levels and is effective as a gain control. The difference between this and the Brightness control is that this adjusts the difference between the brightest and darkest part of the image. Note that all displays have a maximum white level. Going beyond this level only "clips" the upper gray levels and you will lose color resolution at the brighter levels. Adjust this control up until you see the brighter levels of the image begin to wash out, at this point, back it down just below that point. The default setting is midrange, 0.

Saturation

The iScan VP50PRO allows you to control the saturation of the image independent of the display. Saturation is the same as the "Color" control on most TVs and controls the richness of the color in the image. The default setting is midrange, 0.

Hue

As with Saturation, hue can also be controlled independent of the display. Hue is the same as the "Tint" control found on most TVs and controls how colors are displayed in the image. The Hue control is not available for Component or PAL/SECAM inputs. The default setting is midrange, 0.

Y/C Delay

Sometimes there is a lag between the Luminance (Y) and the Chrominance (Pb/Pr or Cb/Cr) of the video signal. This causes a color "smearing" because the color component of the image is not lining up properly to the black and white luminance component of the image. The iScan VP50PRO can compensate for these errors in the source signal by shifting the phase of the Y with respect to the C, forward or backward to align them properly. Use the ▲ and ▼ buttons to adjust the phase and observe the effects on your display to obtain the optimal setting. The default setting is 0.

Chroma Filter (Auto CUE-C™)

This feature removes chroma upsampling errors (CUE) found in video sources which have been MPEG encoded and then improperly decoded.

- **Off** - No chroma filtering. Use this setting if the source does not have a CUE problem.

- **On** - Chroma filtering is always on. Use this setting if the source is known to have a CUE problem.

- **Auto** - Automatic chroma error detection and correction. Use this setting when you don't know if a source has a CUE problem. Also use this setting for all digital sources which use MPEG2 decoders (DVD players, digital satellite receivers, and so on.) as it will also detect and correct chroma errors created by all sources of this type when the source is encoded as interlaced (also sometimes called Interlaced Chroma Problem, or ICP). This is the default setting.

Presets

The iScan VP50PRO has 5 memories that can be used to set the Picture Controls differently on the same input. 3 of these presets are "ISF" modes that can only be saved by an ISF Certified Calibrator (www.imagingscience.com). These 3 modes can be defined by a calibrator for the optimum viewing experience during the day and night, where the ambient light is typically different. There are also 2 modes which can be used by a User to define their own optimum viewing during these same conditions. To adjust these parameters, simply highlight the Preset that you would like to change and then make changes.

Configuration

Test Patterns

The iScan VP50PRO has 27 internal test patterns to assist in the setup of your individual sources and your display. To learn more about how to use the internal test patterns, refer to **Section - 3: Setup**. To turn the test patterns on and off, use the **Test Pattern On/Off** button. To navigate backwards and forwards through the available test patterns use the ◀ and ▶ buttons, respectively.

Auto Standby

The default setting is 'Off', which means iScan VP50PRO is always in Active mode, regardless of the activity state of the selected input. If Auto Standby is 'On', the iScan VP50PRO goes into Standby mode 30 seconds after the selected input becomes inactive. To see the current setting, press ▲ or ▼. Then press the same button again to change the setting.

LED Brightness

This selection allows the user to configure the behavior of the Front Panel LED brightness. The 'Normal' parameter adjusts the brightness of the Front Panel LED when the menu is being navigated. The 'Navigate' parameter adjusts the brightness of the Front Panel LED during normal usage, when the menu is not being navigated.

User Mode

You have limited access to the output timing controls in 'Normal' mode. In 'Advanced' user mode, you have access to the complete set of output timing controls. Push the ▼ button to see the current setting and the FPD displays either 'Normal' or 'Advanced' user level. Push the ▼ button again to select the alternate mode. The default setting is 'Normal'.

Serial Port Rate

The serial port is used by the automation system controllers to control the iScan VP50PRO . The serial port baud rate defaults to 19200 bps, but can be changed using the ▲ or ▼ button.

The supported baud rates are:

- 4800 bps (4.8K)
- 9600 bps (9.6K)
- 14400 bps (14.4K)
- 19200 bps (19.2K)
- 38400 bps (38.4K)
- 57600 bps (57.6K)

Factory Default

The Factory Default option allows you to reset all system settings to their factory defaults.

1- Press either the ▲ or ▼ button. The FPD displays 'No'.

2- Press the same button to switch to 'Yes'.

3- Confirm this selection by pressing the **Enter** button.

   NOTE: Resetting the iScan VP50PRO to the factory defaults will cause all previously saved settings to be lost. Record any important settings before performing this action.

Software Update

Use this parameter to install the latest software into your iScan VP50PRO. The latest software is available at **www.anchorbaytech.com/update**. The website includes complete download install instructions.

12V Trigger Level

The state on the 12V triggers can be changed so that the connected device is in the correct state when triggered by the iScan VP50PRO.

Information

This setting shows information about the system including:

- Video Source
- Signal Type
- Audio Source
- Aspect Ratio

Output Status

- Resolution
- Frame Rate
- Line Rate
- Aspect Ratio

This screen is helpful during troubleshooting.


```
            iScan VP50Pro - v1.00
INPUT STATUS
   Video source : HDMI 4
   Signal type  : 1080i-60Hz, RGB
   Audio source : Off
   Aspect Ratio : 16:9 Full Frame

OUTPUT STATUS (Digital)
   Resolution   : 1920x1080p, RGB
   Frame rate   : 59.94 Hz (Locked)
   Line rate    : 67.432 KHz
   Pixel rate   : 148.352 MHz
   Aspect Ratio : 16:9 Full Frame

            DVDO by Anchor Bay
```

Output Setup

Analog/Digital Output

The iScan VP50PRO can output either an analog or digital video signal. The default setting is for the digital, HDMI, output to be active. To output to a display with an analog input, insure that this setting is set to 'Analog (BNC)'

Output Format

The current selected output format will be highlighted in the OSD in red. To select a different output format, highlight it first and then press the ▶ button. Adjustment of advanced timing controls can also be made here although most displays do not need 'custom' timing. The User Mode, in the Configuration menu, must be changed to 'Advanced' for the advanced timing controls to be accessible. For a complete list of the available output presets, see the *Complete Menu Tree* in Section 5.

Output Aspect Ratio Control

There are five controls for Output Aspect Ratio (OAR):

- Display Aspect Ratio
- Lens Mode
- Screen Aspect Ratio
- Image Shift
- Underscan

The Display Aspect Ratio is the full aspect ratio of the display, normally specified in the display manual. The most common display aspect ratios are 4:3 and 16:9. Less common ones are 5:4, 2.35:1 and others. The example below shows a 4:3 projector with a 16:9 screen.
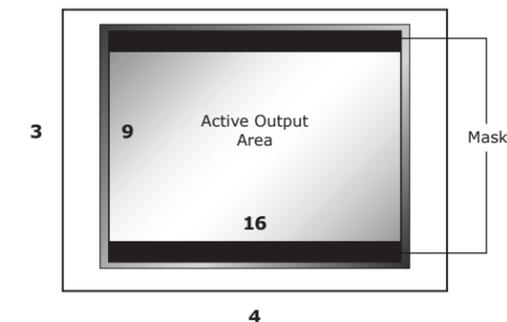
In this example, the region outside the Active Output area (called the mask) is inactive, and only important for creating video timing signals for the display. Input video data is never mapped to this region.

A video projector can also be used in conjunction with an anamorphic lens. An anamorphic lens allows the user to focus the maximum resolution and brightness into a specified area, either 16:9 or 2.35:1. The most common configuration is a constant image height (CIH) system with a 16:9 projector, an anamorphic lens and a 2.35:1 screen. In this configuration, the anamorphic lens can either be fixed or motorized. If the lens is fixed then the proper 'Lens' mode is 'Mode 1' when the content has a 2.35:1 aspect ratio, or higher, and 'Mode 2' is for content that has an aspect ratio less than 2.35:1.

Panamorph "Lens" modes defined:

Mode 1:   Content is displayed by the projector vertically stretched by 33%.

Mode 2:   Content is horizontally squeezed by 25%. This mode is necessary for fixed-lens applications with 16:9 projector/2.35:1 screen and 4:3 projector/16:9 screen configurations.

In a CIH system with a motorized lens, it should only be used when the input content has a 2.35:1, or higher, aspect ratio. The proper mode to use with a motorized anamorphic lens is 'Mode 1 – Auto'. In this mode, the proper 'Lens' mode is automatically selected based upon the selected Active AR on the input. If the Active AR is 2.35:1 or above, "Mode 1" is activated, if the Active AR is below 2.35:1, "None" is selected. With this mode selected, the 'Display' and 'Screen' options will also be grayed out. If the motorized anamorphic lens also has a 12V trigger, it can be automated by connecting to Trigger #2 on the back panel, and setting the 'Output Setup ⇨ Trigger 2' setting to 'Lens'.

When the Display Aspect Ratio is not the same as Active Output Aspect Ratio and the Lens mode is set to 'None', the mask is set to blanking levels and always centers the position of the active area over the display area. Image shift allows you to adjust the location of the image on your screen both horizontally and vertically when the 'Screen' aspect ratio is not equal to the 'Display' aspect ratio. The example below shows 16:9 projector (1.78:1) and a 2.35:1 screen, you can shift the image to match the exact location of your screen. In this situation, the image is shifted down putting all of the mask at the top of the projected image.
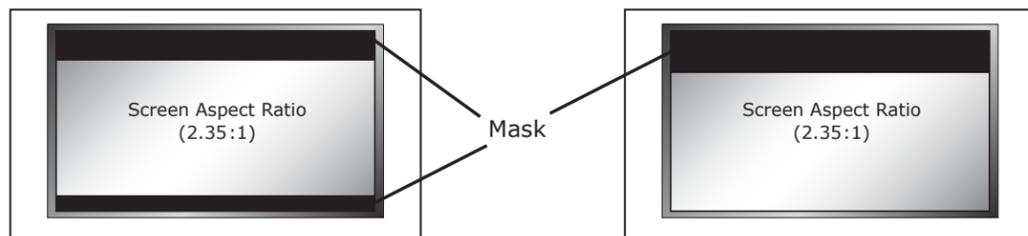
Underscan represents the visible display area, a sub-set of the Active Output Area. Underscan is like a negative zoom which preserves the aspect ratio of the active area. The default for this setting is 0. As you increase underscan, the smaller portion of the active display area appears while preserving the aspect ratio of the active display area. The Frame Geometry Test pattern should be used while making this adjustment.
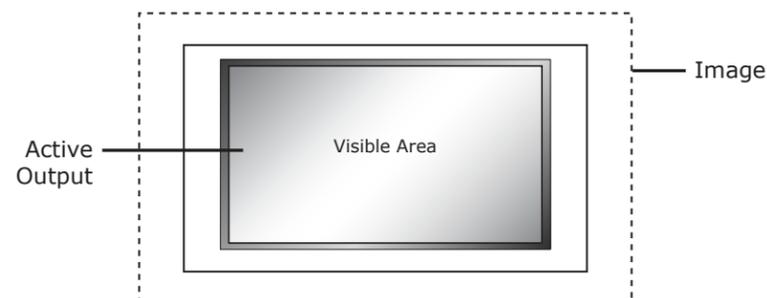
Sync Type

The Sync Type option sets the synchronization signal type of the output format. Press the ▲ or ▼ button to show the current sync type. Press the same button again to move to the next sync type. Currently, the iScan supports seven sync types:

- **Bi-level** bi-level sync on green/luma
- **Tri-level** tri-level sync on green/luma
- **CSync** Composite Sync (on the H sync BNC connector)
- **H+V+** Positive Hsync and Positive Vsync
- **H+V-** Positive Hsync and Negative Vsync
- **H-V+** Negative Hsync and Positive Vsync
- **H-V-** Negative Hsync and Negative Vsync

Color Space

The color space parameter sets the color space of the output format. Press the **Enter** or **?** button to show the current color space. Press the same button again to select the alternate color space. Two analog color space options are supported: YPbPr (default) and RGB. Two digital color space options are supported: RGB (default) and YCbCr (both 4:2:2 and 4:4:4).

Output Level

The output level setting allows the user to specify the levels of the output signal, either Video (16-235) or PC (0-255).

Framerate Conversion

This parameter enables frame rate conversion. There are four sets of controls, one for 24Hz input sources, one for 25Hz input sources, one for 50Hz input sources and one for 60Hz input sources.

For 24Hz sources, the output frame rate can be 24Hz, 48Hz or 60Hz, which allows the user to view 24Hz content on a 60Hz display. For 24Hz sources the output can also be unlocked to 50Hz so that this content can also be viewed on a 50Hz display.

For 50Hz sources, the output frame rate can be either 50Hz or unlocked at 60Hz, which allows the user to view PAL/SECAM content on an NTSC display. For 60Hz sources, the output frame rate can be either 60Hz or unlocked at 50Hz, which allows the user to view NTSC content on a PAL/SECAM display.

First of all, note that there are separate settings for 60 Hz sources and 50 Hz sources. This allows you, for instance, to configure the iScan's output to behave differently with NTSC and PAL sources. One potential advantage of this is that if you have a display which only works at a single frame rate — say, 60 Hz — that you can have the iScan run in locked mode (see below) for 60 Hz sources while applying 50Hz to 60Hz frame rate conversion for all 50Hz sources.

Locked mode (1:1): This means that the iScan's output frame rate tracks the input rate — i.e., the output rate is locked to the input rate. In the 1:1 mode — i.e., 60 Hz source-locked to 60 Hz, and 50 Hz source-locked to 50 Hz — there is always exactly one output frame for every input frame/ field. This mode has the advantage that there are never any dropped or repeated frames (unless the source itself does this). One disadvantage of this mode is that when the video source is changed, the iScan has to re-lock to the new input signal timing. This causes a disruption in the iScan's output signal while the locking process occurs, and can cause many displays to loose sync to the iScan's signal and temporarily blank.

Unlocked mode: This means that the iScan's output frame rate is independent of the input rate. Regardless of any variations in the input, the output frame rate will be fixed at the specified value. This mode results in the most stable output signal as it's independent of any changes in the input

signal. Unlike the locked mode(s), the iScan's output signal timing will not be disrupted when the input source is changed. However, it's guaranteed to cause dropped or repeated frames as the input and output frame rates are not the same. Note that regardless of what number the unlocked output frame rate is set to, it will never be identical to the input rate in this mode as the output signal timing is independent of the input timing. These dropped/repeated frames can result in visible irregularities in smooth motion, sometimes called motion judder or stutter.

Locked mode (2:2 or 3:3): For standard definition interlaced sources the iScan can detect 2:2 and 3:3 pulldown cadences and convert these to either a 2:2 or 3:3 frame repetition rate. The main advantage of this is for 60 Hz sources using 3:2 pulldown, as the irregular 3:2 pattern can be converted to 2:2 at 48 Hz or 3:3 at 72 Hz. In these modes, each original film frame is repeated exactly 2 or 3 times, respectively, and motion is therefore smoother. Note that these modes are only useful when the video source is film-based — i.e., 3:2 pulldown for 24 Hz film on 60 Hz sources, and 2:2 pulldown for 25 Hz film on 50 Hz sources. If the source is not film-based, then the end result is a lot like unlocked mode without that mode's stability advantages.

Motion-judder test pattern: The iScan has a built-in test pattern generator to help you determine which frame rates your display supports. This is the test pattern with the vertical bar which pans horizontally back and forth across the screen. Note that this test pattern is used to determine the capabilities of your display, and does not provide any indication of motion smoothness (or lack thereof) in the iScan's output. The test pattern is used with the unlocked output mode of the iScan. You set the (unlocked) output frame rate to be the one you're testing your display for, and observe if the back and forth panning motion of the test pattern is smooth or if it jerks or stutters. If the former, then the display supports that particular resolution and frame rate without performing any frame rate conversion of its own; if the latter, then the display is performing frame rate conversion on the signal.

Examples. These configuration options provide a lot of flexibility to deal with differing source and display characteristics. Let's look at a few examples:

A.   The display only supports 60 Hz input. In this case, the iScan must produce a (nominal) 60 Hz output. For 60 Hz sources you can run in either 1:1 source-locked mode, or in unlocked mode with the output frame rate set to approximately 60 Hz. You might choose unlocked mode if the display takes a long time to re-sync to new inputs and you channel-surf a lot. Locked mode will provide the smoothest motion and guarantee no dropped or repeated frames. For 50 Hz sources, you'd set the iScan's output to unlocked with a (nominal) 60 Hz frame rate. This will result in some motion irregularities as the iScan periodically repeats frames to convert the 50 Hz input to the 60 Hz output rate, but since the display only supports 60 Hz inputs there's not much you can do.

B.   The display only supports 50 Hz input. This is the opposite of case A, and the required configuration is also the opposite — i.e., the output frame rate for 60 Hz source should be set to 50 Hz unlocked, and the rate for 50 Hz sources can be set to either 1:1 locked or unlocked at 50 Hz (for all the same reasons noted in the first example).

C.   The display supports a wide range of frame rates (e.g., a front projector). In this case you can configure things most any way you like. If motion judder with 3:2 pulldown bothers you, then use the iScan's 24Hz, 48 Hz or 72 Hz source-locked output options for film-based 480i sources. If not, then 60 Hz locked is a good choice. For 50 Hz sources, unless you notice display flicker at 50 Hz, you'd probably want to run at 50 Hz locked to avoid repeated/dropped frames.

D.   A digital display supports a narrow range of frame rates, either around 50 Hz or 72/75 Hz. If the display supports both 50 Hz and 48 Hz, and the primary use of 60 Hz source is film-based material, then you would likely want to configure the iScan as 48 Hz

source-locked for 60 Hz sources, and 50 Hz locked (or unlocked, if desired) for 50 Hz sources. If the higher frame rate (72/75) is desired or required, then both source types can be configured for the 3:3 source-locked output option. For non-film material you may find that there's too much motion stutter, although that tends to be a very personal thing as not everyone perceives this the same way (as with low frame rate display flicker).

Border Level

The border level setting is global, that is, there is only one border level setting for the system. To adjust the border level, push the ▲ or ▼ button. The current level is shown. The default value is '0'. Push the ▲ or ▼ button to decrease or increase the border level.

Picture Controls

The iScan VP50^{PRO} has picture memories for each accepted format that are automatically saved and recalled on each input. In addition to these controls, the iScan VP50^{PRO} has output picture controls that can be used for multiple applications. One application is to save two separate output modes for day/night usage where the ambient light changes. Another application is two adjust the output for separate connected displays. There are two user modes available, titled 'Preset 1' and 'Preset 2'. To make adjustments to one of these modes, first select the desired mode in the 'Preset' submenu and then make the desired changes to the Output Picture Controls.

These modes can be recalled using the **Viewing Modes** button on the remote control.

There are also three additional modes which can be saved by a calibrator who has been trained by the Imaging Science Foundation on proper display calibration methodology. These modes are titled 'ISF Day Normal', 'ISF Day Bright' and 'ISF Night'.

More information about the Imaging Science Foundation is available at www.imagingscience.com

HDCP Mode

There are two HDCP modes:

- **Off:** HDCP is disabled at the iScan VP50^{PRO}'s HDMI output.
- **On:** The iScan VP50^{PRO} continuously looks for a HDCP display device on its HDMI output. This is the default setting.

  NOTE: The iScan VP50^{PRO} is not designed to remove HDCP from a protected signal. If this setting is set to 'On' make sure that the corresponding HDCP Mode setting on the input is also set to 'On'.

12V Triggers

The two 12-volt trigger ports are designed to supply a combined total of 500mA which is split between the two devices based on their draw, so one device can draw up to 495mA if the other only draws 5mA — or both can draw 250mA. These devices do not need to have the same current draw to work. This is enough current to drive one or two 12-volt relays, suitable for turning on a lens and projector, for example. If the combined draw exceeds 500mA, the video processor is protected against overload. The state of the 12V triggers can individually be adjusted in the 'Configuration' menu. This is helpful if the default state of the connected device is incorrect. For example a screen may be set to go up, when in fact the desired state for the screen is to be down.

When the Trigger Level is set to "Normal", it will supply +12vdc on the TIP when active, and will pull the TIP to Ground (0vdc), referenced to the SHIELD — when inactive. When the trigger port is set to "Negative", it will pull the TIP to Ground (0vdc), referenced to SHIELD —and will supply +12vdc to the TIP when inactive. The SHEILD will never carry the +12vdc supply signal. To ensure that damage is not caused, please check the manual of the device that you intend on connecting to the VP50^{PRO} before inserting the trigger plug into the jack.

Trigger #1 is powered on when the iScan VP50^{PRO} is powered on. Trigger #1 is powered off when the iScan VP50^{PRO} is put into Standby mode. This can be useful for powering on a display or motorizing a screen or lift.

Trigger #2 can be programmed to be powered on in the 'Output Setup' menu. This action can be saved as part of a Display Profile. The 'Lens' option facilitates use of an anamorphic lens.

Installer Note: The trigger ports are **outputs** and are not designed to directly receive a 12-volt trigger signal from another device, like an amplifier, automation controller or 12-volt power supply. Care has been taken in the design to ensure that if this was done, no harm should come to the video processor – but it is strongly recommend that other devices are checked to ensure that the trigger ports on the VP50^{PRO} are not being "back-fed".

Driving Relays: When driving a relay from the 12-volt trigger port(s), we strongly recommend wiring a clamping diode in parallel to suppress transient spikes when the relay is turned off. Some relays include a clamping diode within the relay package. If it is unknown whether the relay includes a clamping diode, check the relay coil with an Ohmmeter – with the red and black leads touching the coil pins one way the Ohmmeter should read approximately 0 Ohms resistance (+/-0.4 Ohms), and with the leads red and black leads switched the Ohmmeter should read between 18 Ohms and 100 Ohms. If the same value is indicated for both directions (and it's above 1 Ohm), add a standard "general diode" like a **1N4001** (can be found at any electronic components store) across the relay coil pins (see the figure below for connection diagram).
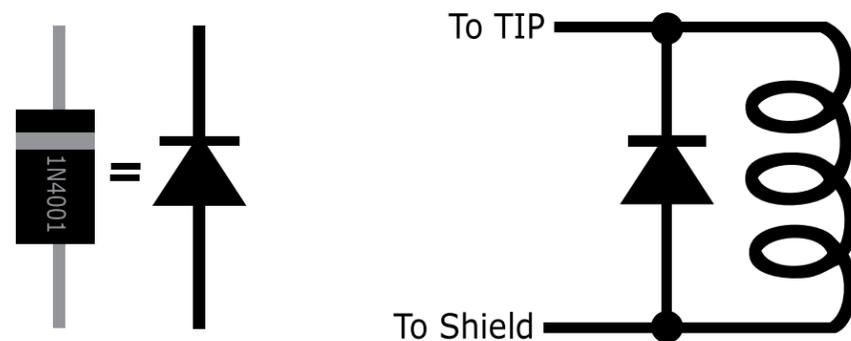
Clamping diode polarity and connection to relay coil

Solid State Loads: The 12-volt triggers do not have a minimum load requirement, which enables our triggers to drive solid state control devices (MOSFETs and optocouplers) found within newer devices.

Display Profiles

A Display Profile is a user-defined preset which contains all settings from the output setup menu. More information can be found on page 17.

Complete Menu Tree

Input Select			
	Video 1		
	Video 1		
	S-Video 1		
	S-Video 2		
	Component 1		
	Component 2		
	RGBHV/Component		
	HDMI 1		
	HDMI 2		
	HDMI 3		
	HDMI 4		
	Auto		
Input Aspect Ratio			
	Frame AR		
		4:3	
		16:9	
	Active AR		
		1.33:1	
		1.55:1	
		1.66:1	
		1.78:1	
		1.85:1	
		2.35:1	
		User	
	Panorama		
		On	
		Off	
	Zoom		
		Horizontal	
			Range: 0-100
		Vertical	
			Range: 0-100
	Pan		
		Horizontal	
			Range: 0-100
		Vertical	
			Range: 0-100
	Borders		
		Horizontal	
			Range: 0-200
		Vertical	
			Range: 0-200
	Presets		
		4:3 Full Frame	
		Letterbox	
		16:9 Full Frame	
		4:3 Stretch	
		Preset 1	
		Preset 2	
		Preset 3	
		Preset 4	
		Preset 5	
		Preset 6	
		Preset 7	
		Preset 8	
		Preset 9	
		Preset 10	

		User		
	Save User to			
		Preset 1		
			No	
			Yes	
		Preset 2		
			No	
			Yes	
		Preset 3		
			No	
			Yes	
		Preset 4		
			No	
			Yes	
		Preset 5		
			No	
			Yes	
		Preset 6		
			No	
			Yes	
		Preset 7		
			No	
			Yes	
		Preset 8		
			No	
			Yes	
		Preset 9		
			No	
			Yes	
		Preset 10		
			No	
			Yes	
Input Adjust				
	Mosquito Noise Reduction			
		Off		
		Low		
		Medium		
		High		
	Deinterlacing			
		Auto		
		Film Bias Mode		
		Forced Modes		
		Video Mode		
		Forced 3:2		
		Forced 2:2		
		2:2 Even		
		2:2 Odd		
		Game Mode 1		
		Game Mode 2		
	PReP			
		Off		
		On		
	Pass Through			
		Off		
		On		
	Overscan			
		Range: 0-20		
	Image Shift			
		Horizontal		
			Range: 0-30	
		Vertical		
			Range:0-30	
	Color Space			

		RGB		
		YPbPr		
		YCbCr 4:2:2		
		YCbCr 4:4:4		
		Auto		
	Input Level			
		Video		
		PC		
	VCR Mode			
		Off		
		On		
		Auto		
	HDMI Config.			
		HDCP Mode		
			On	
			Off	
		Auto AR		
			On	
			Off	
		Auto Color Space		
			Off	
			On	
	Auto Priority			
		Range: 1-13		
	Audio Input			
		Audio 1		
		Audio 2		
		Audio 3		
		Audio 4		
		Stereo		
		HDMI		
		Off		
	AV Lipsync			
		Range: 0-200		
Picture Control				
	Fine Detail			
		Range: -50-50		
	Edge Enhancement			
		Range: -50-50		
	Brightness			
		Range: -50-50		
	Contrast			
		Range: -50-50		
	Saturation			
		Range: -50-50		
	Hue			
		Range: -50-50		
	Y/C Delay			
		Range: -50-50		
	CUE Correction			
		Off		
		On		
		Auto		
	Preset			
		ISF Day Normal		
		ISF Day Bright		
		ISF Night		
		Preset 1		
		Preset 2		
Configuration				
	Test Patterns			
		Frame/Geometry		
		Brightness/Contrast		

	Checkerboard		
	Vertical Lines		
	Horizontal Lines		
	Judder		
	Color8 Bars75		
	Color8 Bars100		
	Window IRE10		
	Window IRE20		
	Window IRE30		
	Window IRE40		
	Window IRE50		
	Window IRE60		
	Window IRE70		
	Window IRE80		
	Window IRE90		
	Window IRE100		
	Gray Ramp		
	Xhatch Coarse		
	Xhatch Fine		
	Focus		
	Half B/W		
	H-Clr7 Bars75		
	H-Clr7 Bars100		
	H-Clr8 Bars75		
	H-Clr8 Bars100		
	Black		
	White		
	Red		
	Green		
	Blue		
	Cyan		
	Magenta		
	Yelllow		
Auto Standby			
	Off		
	On		
LED Brightness			
	Navigation		
		Range: 0-3	
	Normal		
		Range: 0-3	
User Mode			
	Normal		
	Advanced		
Serial Port Rate			
	4800		
	9600		
	14400		
	19200		
	38400		
	57600		
Factory Default			
	No		
	Yes		
Software Update			
	No		
	Yes		
12V Trigger (Levels)			
	Trigger #1		
		Normal	
		Negative	
	Trigger #2		
		Normal	
		Negative	

	Information			
Output Setup				
	Analog/Digital			
		BNC (Analog)		
		HDMI (Digital)		
	Format			
		480p		
		540p		
		576p		
		720p-50		
		720p-60		
		1080i-50		
		1080i-60		
		1080p-24		
		1080p-25		
		1080p-50		
		1080p-60		
		640x480 (VGA)		
		800x600 (SVGA)		
		1024x768 (XGA)		
		1280x1024 (SXGA)		
		848x480		
		852x480		
		1365x768		
		852x576		
		1366x768 (1)		
		1366x768 (2)		
		1360x768 (1)		
		1360x768 (2)		
		1280x768		
		1024x1024		
		1024x852		
		1024x768		
		1024x576		
		848x600		
		1365x1024		
		1400x1050		
		1400x788		
		960x540		
		1280x960		
		1440x960		
		1440x1152		
		User		
			Horizontal Shift	
				Range:
			Horizontal Size	
				Range:
			Horizontal Front Porch	
				Range:
			Horizontal Sync	
				Range:
			Horizontal Back Porch	
				Range:
			Vertical Shift	
				Range:
			Vertical Size	
				Range:
			Vertical Front Porch	
				Range:
			Vertical Sync	
				Range:
			Vertical Back Porch	
				Range:
	Aspect Ratio			

Display
- 4:3
- 5:4
- 16:9
- Custom

Lens
- Mode 1
- Mode 1 - Auto
- Mode 2
- None

Screen
- 4:3
- 16:9
- 2.35:1
- Custom
  - Range: 1.00-3.00

Image Shift
- Vertical
  - Range: -30-30
- Horizontal
  - Range: -30-30
- Underscan
  - Range: 0-100

Sync Type
- Bi-Level
- Tri-Level
- Composite
- H+/V+
- H+/V-
- H-/V+
- H-/V-

Color Space
- RGB
- YPbPr
- YCbCr 4:2:2
- YCbCr 4:4:4

Output Level
- Video
- PC

Framerate
- 24Hz
  - 24Hz Lock
  - 48Hz Lock
  - 60Hz Lock — Yes
  - 72Hz Lock
  - Unlock — No
- 25Hz
  - 25Hz Lock
  - 50Hz Lock — No
  - 75Hz Lock
  - Unlock — Yes
- 50Hz
  - 25Hz Lock — Yes
  - 50Hz Lock
  - 75Hz Lock
  - Unlock
- 60Hz
  - 24Hz Lock
  - 48Hz Lock
  - 60Hz Lock
  - 72Hz Lock
  - Unlock — Yes

Border Level
- Range: -16-100 — No

Picture Control
- Presets
  - ISF Day Normal
  - ISF Day Bright
  - ISF Night
  - Preset 1
  - Preset 2
- Brightness
- Contrast
- Saturation
- Hue
- Gamma Control
  - Off
  - On
    - Red
      - Range: 0.5-2.5
    - Green
      - Range: 0.5-2.5
    - Blue
      - Range: 0.5-2.5
  - User
- HDCP Mode
  - Off
  - On
- 12V Trigger #2
  - Lens
  - On
  - Off
- Display Profile
  - Select
    - Profile 1
    - Profile 2
    - Profile 3
    - Profile 4
    - Profile 5
    - Profile 6
    - Profile 7
    - Profile 8
    - Profile 9
    - Profile 10
  - Save
    - Profile 1
      - No
      - Yes
    - Profile 2
      - No
      - Yes
    - Profile 3
      - No
      - Yes
    - Profile 4
      - No
      - Yes
    - Profile 5
      - No
      - Yes
    - Profile 6
      - No
      - Yes
    - Profile 7
      - No
      - Yes
    - Profile 8
      - No

		Yes
	Profile 9	
		No
		Yes
	Profile 10	
		No
		Yes
Auto		
	Off	
	On	